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# COMPLETELY LAUNDERABLE ALL-WOOL APPAREL:

## the potential market

## PREFACE

This study is part of a broad program designed to help increase sales and broaden the markets for farm products. The report presents a market analysis of potentials for completely launderable all-wool apparel. This new wool characteristic can be imparted by applying the Department's WURLAN process. This process may also impart other attributes that will improve sales of all-wool apparel. These are cited in the appendix, but have not been considered in this market analysis. Information contained in this report provides guides to the textile industry for adding complete launderability to all-wool apparel and does not analyze all aspects of the WURLAN process.

Particular recognition is given to members of the Department of Agriculture's Wool and Mohair Laboratory, Western Utilization Research and Development Division, Agricultural Research Service, Albany, Calif., for their assistance in providing technical information on the WURLAN process and treated product as given in the appendix. More detailed and current technical information on WURLAN can be acquired from that group.

This study was conducted under the general direction of Marshall E. Miller Chief, Market Potentials Branch, and Frederick J. Poats, Agricultural Economist, Marketing Economics Division, Economic Research Service.

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## HIGHLIGHTS

A process imparting complete machine launderability could be applied to advantage to an estimated 131 million pounds of wool, based on 1962 consumption patterns, going into all-wool apparel items.

According to clothing retailers, all-wool goods now marketed and labeled machine washable require special washday handling and, therefore, do not meet market requirements for ease of care. As a result, their sales have been more limited than those of garments made of blends of wool and other fibers that do have more of the easy-care characteristics. Management personnel of companies representing 3,300 retail clothing stores reveal that only 50 percent of these firms merchandised at least one machine washable, all-wool apparel item. At the same time, nearly all of the firms were merchandising one or more wool-blend items labeled machine washable.

Many all-wool clothing items should have the basic property of complete machine launderability. All sweaters, knit jackets, and jerseys, women's popular and medium-price skirts and slacks, men's and boys' socks, boys' trousers, and retail piece goods are items where substantial quantities of wool are used. According to retailers, complete launderability would improve consumer appeal of these all-wool products. The competitive position of several other apparel items would also be made stronger by this property; however, smaller amounts of wool would be affected.

Completely launderable all-wool fabrics can be handled in the normal washday procedure without special care. This characteristic reduces costs to consumers in maintaining their wardrobe and is possessed by many fibers and fabrics in market competition with all-wool. The addition of complete launderability to all-wool fabrics would eliminate this competitive advantage other fabrics now have in the apparel markets, while wool would still provide its other functional serviceability and aesthetic features. WURLANized wool, a development of the U.S. Department of Agriculture, is now in its early stage of commercialization. It closely meets requirements for complete launderability and may offer a means to increase market value and sales of many all-wool apparel items.

Initial costs to the consumer of purchasing completely launderable all-wool garments would be higher than for garments without this feature. These initial costs, however, would be quickly offset by reduced cleaning bills.

COMPLETELY LAUNDERABLE ALL-WOOL APPAREL:  
THE POTENTIAL MARKET

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INTRODUCTION

Many types of apparel made of fibers other than all-wool are merchandised as "wash-and-wear." Most all-wool apparel items sold today, require special care during washing and drying, or they must be drycleaned. Greater convenience from being able to wash wool apparel in the home and reduced maintenance costs have been the goals of a number of treatments devised through research. Some chemical treatments, as well as other kinds of treatments, have been commercially developed. They have helped all-wool products compete better with launderable products made of other fibers and fiber blends. WURLAN is the name given the new shrink-resistant wool process that has been developed by the Western Utilization Research and Development Division, U.S. Department of Agriculture. This new process promises a number of advances in home laundering of all-wool goods. A brief description of the process and processed fabric is in the appendix.

In considerations of process adoption and consequent impact on wool use, more definitive information was required on: (1) The degree of laundering capability that all-wool garments should possess to meet market requirements; (2) the particular items of clothing that need laundering characteristics; and (3) the poundage of shrink-proof wool needed to satisfy market demand for launderable all-wool clothing.

Since WURLAN wool was not on the market at the time of this study, a way to evaluate the above factors had to be developed. Retailers' experience in stocking and selling the various competitive and completely launderable clothing items, as well as their experience with all-wool items with limited laundering characteristics, was thought to be important in determining the prospects for any new process that imparts complete launderability to all-wool. The concept of complete launderability was used because (1) it appeared feasible with the WURLAN process and (2) it would meet consumer expectations of a launderable product. A demonstration booklet of swatches was used during interviews to assure a complete understanding as to the meaning of complete launderability. For this, completely launderable fabrics (WURLANized) were placed in contrast with untreated drycleanable fabrics. These fabrics were all-wool, both washed and unwashed. This demonstration made possible the evaluation of the fabrics from the standpoint of (1) aroma, (2) pilling, (3) dye properties, (4) hand (a quality characteristic of wool sensed by touch or feel), and (5) shrinkage or stretching (dimensional stability). In addition, adaptability of the WURLAN process could be realized as fabrics of several weights, weaves, colors, and pattern designs were included.

Information on the need for complete launderability in the various items of clothing was gathered by interviews with merchandise managers and clothing buyers of 40 retail firms (representing over 3,300 retail clothing outlets) and with officials of 25 apparel manufacturing companies. The manufacturing companies were selected mainly on the basis of gaining information on a cross section of all apparel items considered. Certain manufacturers were selected for the survey when their experience in producing washable wool apparel was known. For the retail respondents, large

companies were selected. Most were department store operations, with a broad range of men's, women's and children's apparel items. It was thought that these companies would be well aware of factors influencing the demand for various apparel items and that these items would be widely represented from a quality standpoint. Geographical representation was achieved through interviewing firms in 24 cities throughout the country. About one-half of the companies had regional or national store operations. The remaining one-half were local firms (selling operations confined to one metropolitan area). Finally, those retail companies that had experience with WURLANized wool were interviewed. Individual responses of firms were not weighted by sales volume or number of store outlets. Each firm's response was treated equally. This procedure was used to prevent disclosing the identities of a few large multioutlet firms.

### Product Descriptions and Problems

The textile industry expresses the differences between present and desired laundering characteristics of wool apparel in terms of care required (laundering practices). They range from hand washable only to complete machine laundering with no ironing required, referred to as "wash-and-wear." When directions for laundering given on the label are followed, the garment is usually not damaged. Several criteria are used to judge laundering damage. For wool fabrics, protection against shrinking or stretching (dimensional stability) is the primary problem. The process to prevent shrinkage must not adversely affect the garment as to: (1) Hand, (2) color, (3) fabric finishes, including permanent pleats or creases, and (4) surface characteristics of the fabric (particularly the avoidance of "pilling" of the surface fibers.)

Retailers say that all-wool items of apparel with limited launderability features now on the market are only partially acceptable to consumers because of the laundering requirements. This condition causes two merchandising problems: (1) The increased demand expected for these fabrics is limited by the restrictive washing practices, and (2) the washability guarantee creates customer relations problems for the store. (The guarantee and recommended laundering practices, although stated on tags, fail to cover retailer risks when consumers do not launder the apparel as instructed.) According to retailers, improved laundering characteristics and a reduced number of laundering failures are needed in all-wool apparel to increase consumer demand. If products fail to meet the consumer's expectations, laundering instructions stated on tags or labels do very little to reduce claims of unsatisfactory laundering performance.

What degree of easy-care laundering characteristics is actually desirable in all-wool? This question is answered for the purposes of this study in terms of (1) what retailers consider necessary in degree of launderability as a promotable feature that will meet consumer expectations, and (2) what laundering practices appear technically possible in the very near future through development of known processes.

The product that fits the description of complete launderability is used in this study as meeting both consumers' expectations and retailers' needs. Laundering characteristics of wool products of limited launderability 1/ and of wool products of complete launderability follow: 1/

1/ The terms "limited launderability" and "complete launderability" are abbreviated in some of the following discussions to "L-L" and "C-L" respectively.

<u>Item</u>	<u>Limited Launderability</u>	<u>Complete Launderability</u>
(1) Washing equipment:	Home style agitator washing machines	Home style agitator washing machines
(2) Agitation time:	Short cycle	Full-length cycle
(3) Agitation speed:	Slow	Regular
(4) Wash water temp.:	Warm	Hot (up to 150° F.)
(5) Detergent:	Specified	Unspecified
(6) Rinse:	Single - limited agitation	Double - regular agitation
(7) Extraction:	Slow spin	Regular spin
(8) Drying:	Line dry	Tumble dryer with heat
(9) Pressing:	Steam press or use flat-iron with pressing cloth	Steam press or use flat-iron with pressing cloth

At this early stage of the WURLAN development, most success in achieving complete launderability is made with broad woven fabrics. Dimensional stability is attained from this process without loss of hand, or other desired characteristics of all-wool fabrics. Even so, WURLANized wool does not meet the retailer's definition of a truly "wash-and-wear" product. The retailers' view of laundering requirements for a completely launderable wool product that does need pressing more nearly matches the description of the WURLANized product.

#### Fiber Market Directly Influenced by Launderable Wool

Total fiber consumption in this market amounted to 2,269 million pounds in 1962 (table 1). This represents the 1962 total fiber usage in the manufacturing of specified items. Each item was selected only when launderability of that item in wool was thought to have commercial application. For example, women's skirts were selected for consideration but not men's suits. Wool represented 242 million pounds, or about 11 percent of the total. However, this appraisal of the market for completely launderable wool textile products was limited to examining the 179 million pounds of all-wool, about 8 percent of this total selected apparel market.

The potential amount of wool that would need complete launderability was predicted from analysis of each all-wool apparel item now marketed. These estimates do not include a substantial quantity of wool and other fibers used in wool-blend apparel fabrics; nor does it include possibilities of new uses for wool on account of new properties.

Launderability in wool garments is now available to consumers mainly from blends of wool with other fibers. Some wool-blend products are sold as "wash-and-wear." All-wool apparel labeled machine washable is also sold, but it has only limited launderability. Specific data are not available as to the amount of these two kinds of wool products sold, but market penetration of the two gives an indication of their present market.

In terms of the number of retailers stocking these products, sales of easy-care all-wools are limited when compared to sales of easy-care wool blends. Table 2 shows retail market penetration for these two kinds of wool apparel. Just half the retailers offer their customers one or more machine washable items made of all-wool. For wool blends, the proportion is 97 percent. As to an individual item, machine washable all-wool fabrics were nonexistent in girls', children's, and infants' coats; while 33 percent of the retailers had these coats in machine-washable wool blends.

Table 1.--Consumption of all fibers, of wool, and of wool used in all-wool and in wool blends, in domestic production of selected apparel and other consumer items, 1962 <sup>1/</sup>

Item	Estimated consumption of			
	Total consumption <sup>2/</sup>		wool used in... <sup>3/</sup>	
	All fibers	Wool	All-wool	Wool blends
----- <u>Million pounds</u> -----				
Women's, misses', and juniors'.....	567	87	61	26
Skirts.....	98	38	27	11
Sweaters.....	50	13	9	4
Slacks.....	48	14	10	4
Other.....	371	22	15	7
Men's and boys'.....	899	97	78	19
Sweaters.....	44	24	19	5
Separate slacks.....	172	25	20	5
Knit underwear and hose.....	230	11	9	2
Other.....	453	37	30	7
Girls', children's, and infants'.....				
All items.....	297	26	18	9
Other consumer products.....	506	32	22	10
Retail piece goods.....	190	12	8	4
Other.....	316	20	14	6
Total.....	2,269	242	179	64

<sup>1/</sup> Figures are rounded to nearest whole million.

<sup>2/</sup> From Textile Organon, Dec. 1963.

<sup>3/</sup> Estimates made in Economic Research Service, U.S. Department of Agriculture.

Complete launderability is expected to improve all-wool apparel's competitive position in the total apparel market. This characteristic will be a new plus factor for all-wool. Retailers cited the importance of launderability in terms of its promotional value as follows: (1) Reduced apparel maintenance costs to consumers, and (2) added convenience within the scope of home care. However, the total impact of complete launderability on the wool market will depend not only on consumer reactions to lower maintenance costs and increased convenience, but to other costs, and wearing and appearance properties of wool.

Demand relationships among all economic, functional, and aesthetic textile properties would be required to predict changes in market size caused by complete launderability. For example, retailers reported that consumer appeal for apparel made of wool-blend fabrics differs from apparel made of all-wool in comfort, appearance, and wearability, not just in laundering characteristics where wool blends are superior. The high incidence of firms merchandising easy-care wool blends is therefore only a partial guide to the potential market penetration of completely launderable all-wool.

Table 2.--Comparative availability of easy-care all-wool and wool-blend apparel in retail stores, 1962 1/

Apparel class reported	Proportion of all retailers who offer at least one easy-care--	
	All-wool item	Wool-blend item
	Percent	
All ready-to-wear apparel.....	50	97
Girls', children's, and infants'.....	38	97
Skirts.....	28	97
Slacks.....	31	90
Sweaters, knit jackets, and jerseys.....	25	82
Coats and leggings and coat and snowpants sets.....	21	71
Ski and snowpants and leggings.....	12	71
Ski and snowsuits.....	12	78
Jackets.....	10	71
Suits (except ski and snowsuits and slack suits).....	4	61
Coats.....	0	33
:		
Women's, misses', and juniors'.....	40	80
Slacks.....	38	54
Skirts.....	23	64
Shirts, blouses, and waists.....	17	59
Sweaters, jerseys, and cardigans.....	33	71
Dresses.....	17	57
:		
Men's and boys'.....	41	89
Separate dress and sport trousers.....	18	70
Separate sport coats and jackets.....	12	35
Men's sweaters, knit jackets and jerseys...	37	70
Boys' sweaters, knit jackets and jerseys...	35	69
Range of all items.....	0-38	33-97

1/ Easy-care all-wool items have limited launderability as described on page 3. Easy-care wool blends have a range of laundering characteristics from limited launderability to wash-and-wear.

#### ALL-WOOL APPAREL NEEDING COMPLETE LAUNDERABILITY

##### Four Factors in Selecting All-Wool Apparel for Complete Launderability

The added value gained from complete launderability and consequent merchandising advantage of this feature in various items of all-wool apparel depends on adaptability and need for it in each item. To consumers, complete launderability is synonymous to convenience, or easy care and a cost saving in apparel maintenance. To the retail trade, this feature in some items of all-wool apparel will: (1) Eliminate one of the competitive disadvantages all-wool now has, and (2) attract strong, new, consumer buying interest. Retailers used the following four factors as their basis for expressing consumer needs for complete launderability in all-wool apparel. In turn, they used these same four factors to select all-wool apparel to sell with the complete launderability.

1. Wearing frequency (complete launderability would be increasingly desired, the more often the apparel is worn).

2. Wearing conditions, or occasion (launderability, in general, would be of decreasing importance as the cleanliness of environment is improved, and appearance requirements are increased).

3. Apparel construction (washing and pressing highly tailored apparel would be difficult for consumers; also, some linings and accessories are not suited for complete laundering).

4. Wool apparel caretraditions (established consumer views that treatments, such as airing, brushing, and drycleaning are the only ways to care for their "best" attire).

For some all-wool apparel, retailers indicated a large-volume difference between what they now sell with limited launderability and what they desire or could sell with complete launderability. Merchandise managers and buyers of apparel for retail firms were asked to estimate: (1) The percentage of each item of all-wool apparel they were presently merchandising with limited launderability, and (2) the percentage they desire to merchandise with complete launderability. If the answer to the second question was less than 100 percent, the respondent was asked to identify the line (quality grouping according to price) of that item that should not have any laundering characteristics applied. This survey information is reported in tables 3, 4, 5, and 6, and discussed in the following sections.

#### Marketing All-Wool Apparel with Limited Launderability in 1962

Only a few retail firms were selling all-wool apparel with this feature in 1962. The following tables show percentages of each item with limited launderability that retailers were selling. These relative quantities vary widely. The tables also show in contrast the percentages of each item the retailers would sell with easy-care characteristics if those characteristics were improved, meaning complete launderability as earlier described.

Most retailers said that when they considered stocking the present launderable all-wool apparel, the items either were not available in regular brand names carried, or did not offer enough of the total laundering characteristics desired. Consequently, they decided not to stock all-wool apparel with the limited launderability or at most, only a few "lines." The few firms now selling the present product and reasons given for not selling more shows retailer's interest in merchandising easy-care wools and indicates the quantity of this apparel sold could be increased, if the laundering properties were improved. Retailers later said they wanted to sell much larger quantities of easy-care all-wool items, provided they could be described as completely launderable. Saleability of all wool apparel to consumers can be increased; but, such saleability will still depend strongly on consumers' reactions to other characteristics of all-wool as an apparel fabric, and to fashion needs, in addition to women's decisions to utilize the complete launderability feature.

#### Complete Launderability and Girls', Children's, and Infants' Wear

Sweaters, knit jackets, jerseys, skirts, and slacks.--All retailers wanted at least part of these all-wool items merchandised as C-L (completely launderable) (table 3). A few firms did not want every line of these items with the feature. However, most firms wanted to adjust from selling only small relative amounts of these products with L-L (limited launderability) to selling practically all lines of these items as C-L.

Table 3.--Number of retail firms selling all-wool girls', children's, and infants' apparel, selected items, by percent of total sales of what (1) currently has limited launderability, and (2) is desired with complete launderability, 1962

Apparel item, and degree of launderability	Firms reporting	Firms having following percentages of total sales--			
		None	1 to 50	51 to 90	91 to 100
		percent	percent	percent	percent
		----- Number -----			
Sweaters, knit jackets, and jerseys:					
(1) Limited.....	28	21	4	1	2
(2) Complete.....	28	0	2	2	24
Skirts:					
(1) Limited.....	28	20	5	3	0
(2) Complete.....	28	0	4	4	20
Slacks:					
(1) Limited.....	26	18	5	2	1
(2) Complete.....	26	0	3	4	19

Most retailers said the kinds of abusive wear given apparel by these age groups call for frequent cleaning. They considered wearing habits and the resulting cleaning requirements to be key factors in merchandising these all-wool items to mothers of this consumer age group. School and play-wear lines were said to be of most importance. However, from a merchandising standpoint, most retailers said it should be recognized that "Mothers would want C-L in all lines of these items when purchasing them, regardless of quality."

Consumers would still want to have the best qualities of this apparel drycleaned for best appearance. This reason was given by a few retailers for not wanting every line of this merchandise sold as C-L. For sweaters, this point seemed minor as any pressing after washing would involve only a "touching-up" of the garment. Appearance in slacks is not of major concern because of the informality of occasions for which they are worn. For skirts, appearance could be a factor, particularly pleated skirts, skirts with full linings, and any skirts with nonlaunderable accessories that would cause difficulty in washing and pressing at home.

Suits, (except ski and snowsuits, and slacks suits).--All but one retailer in the survey wanted to merchandise some of their 100-percent wool suits as C-L (table 4). Eight retailers wanted between 1 and 50 percent of their suits as C-L while 13 retailers wanted this feature in all of their suits. Popular and medium-price suits were lines named by these retailers where C-L could meet a consumer need and benefit sales.

Wool suits, particularly the best quality lines, are worn for occasions where appearance is very important. The difficulty in caring for garments constructed with linings and other accessories without damaging effects limits the usefulness of launderability. For this reason, some wool suits would not be improved products, because of the laundering characteristics.

Jackets.--Over one-half of the retailers (12 of 20) desired to have all of their 100 percent wool jackets C-L (table 4). Five retailers wanted lesser amounts,

Table 4.--Number of retail firms selling all-wool girls', children's and infants' apparel, selected items, by percent of total sales of what (1) currently has limited launderability and (2) is desired with complete launderability, 1962

Apparel item, and degree of launderability	Firms reporting	Firms having following percentages of total sales--			
		None : 1 to 50 : 51 to 90 : 91 to 100			
		Number			
Suits (except ski and snow-suits and slack suits):					
(1) Limited.....	23	22	1	0	0
(2) Complete.....	23	1	8	1	13
Jackets:					
(1) Limited.....	20	18	2	0	0
(2) Complete.....	20	3	2	3	12
Coats and leggings and coat and snowpants sets:					
(1) Limited.....	19	15	2	0	2
(2) Complete.....	19	5	1	2	11
Ski and snowpants and leggings:					
(1) Limited.....	16	14	1	0	1
(2) Complete.....	16	5	1	1	9
Ski and snowsuits:					
(1) Limited.....	16	14	1	1	0
(2) Complete.....	16	5	1	1	9
Coats:					
(1) Limited.....	29	29	0	0	0
(2) Complete.....	29	17	2	3	7

while three retailers did not want any jackets C-L. The all-wool jackets mentioned, where C-L would increase sales appeal, should be (1) constructed of light-weight fabrics, and unlined, and (2) designed for use as play, or school wear.

The following reasons were given to explain why C-L would not be advantageous in merchandising all-wool jackets: (1) Laundering would detract from appearance of the garment; this is most important in the highest quality lines, (2) generally, the infrequent cleaning required of the garment would not make the characteristic important to mothers, and (3) jackets are too bulky for home pressing.

Coats and leggings and coat and snowpants sets; ski and snowpants and leggings; and ski and snowsuits.--Views differed widely among retailers regarding the importance of merchandising these items as C-L (table 4). Five considered launderability to have no effect on the sales strength or potential of these items. Over one-half the group could see C-L as an advantage in these items by meeting consumer needs. In some lines, the features would be an asset, but two reasons were offered to explain why C-L is not desirable in all lines of these items: (1) Washing, drying, and pressing would be very difficult in items made of heavy fabrics with added linings, belts, pockets, and other accessories; and (2) the infrequent need for cleaning these all-wool items limits the need for laundering characteristics.

Coats.--Over one-half of the retailers (17 of 29) did not see an advantage in having any of their all-wool coats as C-L (table 4). Twelve retailers wanted from a few to all of their coats with this feature because consumers generally desire it. Reasons for not adding laundering characteristics are as follows: (1) Difficulty in washing and pressing apparel of bulky, heavy-weight fabrics would diminish consumer sales appeal and consequent merchandising value, (2) coats of all-wool content are relatively expensive items where a neat appearance is very important to consumers, and (3) the infrequent cleaning generally required of this item is an additional reason why C-L would have little or no advantage over drycleaning, and not add to consumer appeal for all-wool coats. The value of adding C-L to all-wool coats would, therefore, be negligible to either the retailer or to the consumer.

#### Complete Launderability and Women's, Misses', and Juniors' Wear

Sweaters, jerseys, cardigans, shirts, blouses, and waists.--Most retailers wanted to adjust from not selling any of these items with L-L to selling practically all as C-L (table 5). A few retailers suggested limiting C-L to certain lines of this merchandise. According to retailers, these all-wool items, where cleaning can be done easily at home, and is needed frequently, would have increased consumer sales appeal because of the laundering characteristics. Retailers pointed out that consumers want and can use the feature to increase their satisfaction with these apparel items. Even if the garments were drycleaned when new, they could be laundered at home after several wearings.

Table 5.--Number of retail firms selling all-wool women's, misses', and juniors' apparel, selected items, by percent of total sales of what (1) currently has limited launderability, and (2) is desired with complete launderability, 1962

Apparel item, and degree of launderability	Firms reporting	Firms having following percentages of total sales--			
		None	1 to 50	51 to 90	91 to 100
		percent	percent	percent	percent
		----- <u>Number</u> -----			
Sweaters, jerseys and cardigans:					
(1) Limited.....	30	20	5	3	2
(2) Complete.....	30	0	2	5	23
Shirts, blouses and waists:					
(1) Limited.....	24	20	2	1	1
(2) Complete.....	24	1	1	6	16
Skirts:					
(1) Limited.....	30	23	7	0	0
(2) Complete.....	30	1	5	9	15
Slacks:					
(1) Limited.....	13	8	5	0	0
(2) Complete.....	13	1	3	3	6
Dresses:					
(1) Limited.....	30	25	5	0	0
(2) Complete.....	30	5	9	8	8

Those retailers that would limit the addition of C-L to only part of this merchandise were concerned that neat appearance desired by consumers could not be attained after laundering. They mentioned items worn for "dress-up" occasions or used in "better-price" ensembles as lines where laundering characteristics would not improve sales appeal.

Skirts and slacks.--Most retailers said C-L would be an advantage in merchandising all-wool skirts, and slacks (table 5). All of these 100 percent wool items should be C-L, according to half the retailers. The other retailers thought this feature should be limited to only certain lines of these items.

Skirts and slacks for school wear, including college wear and for participating sportswear, are items that have a strong need for economical, convenient, and frequent laundering. All-wool skirts for office workers will be more popular if made C-L. "Popular-price" items were mentioned most often as apparel where C-L gives the most added value and would enhance sales. "Medium-price" skirts were recognized as items where launderability was less important. Retailers expect that as the customer shifts upward in "pricelines" there will be decreasing customer appeal to C-L for wool skirts.

Retailers that would limit the application of C-L to certain lines gave the following reasons:

(1) The higher price lines would not be more saleable because of launderability. (They say that the "better-price" lines are designed and merchandised particularly on aesthetic values rather than laundering utility).

(2) "Budget-price" or "bargain-basement" kinds of all-wool merchandise are undesirable as C-L because adding launderability would increase manufacturing costs and raise retail prices, disturbing present price lines.

These reasons for not adding the feature have most application to skirts. For slacks, because they are a casual sportswear item, some of the neatness from drycleaning and pressing could be willingly sacrificed by consumers. The occasions and uses when slacks are worn make economical and frequent cleaning capabilities a big advantage.

Dresses.--Retailers' opinions as to the desirability of having dresses of all-wool labeled C-L is not as specific as for other groups of items (table 5). Of the 30 retailers, some (5) could see no advantage in merchandising all-wool dresses with laundering characteristics. Nine wanted under 50 percent of the all-wool dresses they sell as C-L; 8 said they wanted between 51 and 90 percent to be C-L, and the other 8 wanted all of their 100 percent wool dresses to be C-L.

There were some key points made about adding C-L to some all-wool dresses. Plain wool dresses, without ornamentation, for school-age girls would be more desired if C-L were added. "Budget and popular-price" dresses that are not highly tailored were mentioned often as the part of the wool dress inventory that retailers would like to sell as C-L. "Medium-price" wool dresses were named as the definite upper limit of quality for which the application of C-L could be merchandised successfully in all-wool dresses.

Complete launderability was unwanted with certain lines of all-wool dresses because: (1) Consumers would have difficulty in washing and pressing highly tailored dresses, (2) appearance requirements for those "dress-up" occasions where all-wool dresses are worn will cause consumers to continue having their all-wool

dresses drycleaned, and (3) the infrequent need for cleaning and pressing presently used all-wool dresses causes C-L to have little value in them.

Other products.--All-wool gloves, scarves and unlined jackets for women were other items of apparel where retailers said C-L would aid in merchandising.

#### Complete Launderability and Men's and Boys' Wear

Sweaters, knit jackets, and jerseys.--All retailers wanted C-L added to some of these men's and boys' all-wool knit items (table 6). Two-thirds of the retailers could see a merchandising advantage in having all lines made C-L. They said the frequent and economical cleaning that the housewife could do provides the point of promotion in merchandising all of these products with the feature.

Those retailers that would limit C-L to certain lines would not add it to the highest quality "better-price" lines of merchandise. They said the need for frequent laundering here was not sufficiently apparent to expect added sales appeal from C-Ls.

Separate dress and sport trousers.--Most retailers wanted to offer some C-L trousers (table 6). The proportion of all trousers to be sold with this feature varies widely. Retailers are not agreed as to consumer need for C-L trousers. They believe men would continue to want their trousers drycleaned to attain best appearance after cleaning.

Table 6.--Number of firms selling all-wool men's and boys' apparel, selected items, by percent of total sales of what (1) currently has limited launderability and (2) is desired with complete launderability, 1962

Apparel item, and degree of launderability	Firms reporting	Firms having following percentages of total sales--			
		None	1 to 50	51 to 90	91 to 100
		percent	percent	percent	percent
		-----Number-----			
Men's sweaters, knit jackets, and jerseys:					
(1) Limited.....	27	16	5	3	3
(2) Complete.....	27	0	2	7	18
:					
Boys' sweaters, knit jackets, and jerseys:					
(1) Limited.....	26	17	4	3	2
(2) Complete.....	26	0	2	7	17
:					
Separate dress and sport trousers:					
(1) Limited.....	27	22	2	2	1
(2) Complete.....	27	4	5	6	12
:					
Separate sport coats and jackets:					
(1) Limited.....	25	22	1	2	0
(2) Complete.....	25	17	3	1	4
:					

Trousers for the boys and teenage groups were mentioned most often by retailers as an all-wool product that needs C-L. Complete launderability would meet a retail market need in "budget" and "popular-price" lines of boys' trousers. All-wool trousers for school and casual sportswear would be enhanced in customer appeal if mothers could completely launder them at home.

Separate sport coats and jackets.--All-wool sport coats and jackets would gain little, if any, merchandising value from C-L. Light-weight, single-ply fabric items that are constructed with a minimum of paddings and trimmings are a possible exception. Infrequent cleaning generally required of these items, difficulty in laundering heavy-weight fabrics, and desire for the neat appearance that results from drycleaning and commercial steam pressing are the most important considerations, according to retailers.

Other products.--All-wool socks, shirts, scarves, and robes are items that are now merchandised by a few firms with C-L. These items would be greatly improved and have stronger sales appeal because of adding C-L. Retailers said they want all of these items to be C-L because they will sell more readily to consumers.

#### Complete Launderability and Other Consumer Products

Retailers mentioned other nonapparel products that need C-L. They said all handwork yarns, retail piece goods, and blankets made of all-wool would be more saleable if they were C-L. Wool used in apparel linings, should, of course, be completely launderable when the shell fabric has the feature. All-wool upholstery, drapes, and slip covers represent a small market at present, but could be improved and expanded by adding complete launderability.

This laundering utility also has possible application to wool used in carpets and rugs. Small spot removal in the home and entire rug cleaning commercially, or by the consumer could be facilitated by having the product completely launderable.

#### ESTIMATED MARKET FOR COMPLETELY LAUNDERABLE WOOL

No commercial completely launderable (C-L), all-wool products, as described previously in this report, existed in 1962. The estimated market for C-L wool is based on this retail survey and additional market analysis. The major factors concerned in the analysis were: (1) Quantities of wool used in various all-wool items and imported wool apparel during 1962, (2) the adoption and consequent widespread use of any process that yields C-L all-wool apparel, and (3) survey data based on retailers' estimates about the need for C-L in selected items of all-wool apparel.

Based on the foregoing factors, completely launderable items could consume 131.4 million pounds of wool. The domestic apparel manufacturing industry and producers of other consumer products would have used 117.4 million pounds of the total. Import sources would have supplied an estimated 9 million pounds of all-wool sweaters and about 5 million pounds of other all-wool apparel.

Table 7a and 7b give an analysis of wool consumed in all-wool apparel and other consumer items under 1962 conditions, and show the potential amount of wool going into completely launderable items. Any improvement in all-wool's competitive position with blends and other fibers achieved through the addition of the launderability feature would add to this estimate.

Table 7a.--Consumption of wool in selected items of all-wool apparel and other consumer items, and predicted pounds of wool to be treated for complete launderability, 1962 market basis

Item	Wool consumed as all-wool 1/	Completely launderable wool	
		Conversion rate 2/	Consumption indicated
		Million pounds	Percent
<u>Domestic production of--</u>			
Women's, misses', and juniors':			
Skirts.....	27	80	21.6
Sweaters.....	9	90	8.1
Slacks.....	10	80	8.0
Other 3/.....	15	NA	9.1
Subtotal.....	61	NA	46.8
Men's and boys':			
Sweaters.....	19	90	17.1
Separate slacks.....	20	50	4/ 10.0
Knit underwear and hose.....	9	90	8.1
Other 3/.....	30	NA	7.8
Subtotal.....	78	NA	43.0
Girls', children's, and infants':			
All items (other) 3/.....	18	NA	7.8
Other consumer products			
Retail piece goods.....	8	90	7.2
Other 3/.....	14	NA	12.6
Subtotal.....	22	NA	19.8
<u>Imports of apparel 5/.....</u>	20	NA	14.0
Total.....	199	NA	131.4

1/ Estimated - excludes wool used in blends.

2/ Estimated from survey results on need for complete launderability.

3/ All of the "other" subitems are detailed in table 7b.

4/ Represents teenage and boys' slacks mostly. See item discussion, page 11.

5/ Based on government and industry import statistics.

The achievement of this market volume will depend, as we assumed earlier, on the widespread use of any process that yields complete launderability in all-wool. The WURLAN process has been successfully adapted to several broad-woven fabric constructions. In addition, recent advances in processing are making possible the efficient treatment of wool for knit goods. Several leading manufacturers of broad-woven fabrics and yarn goods have made possible the commercialization of WURLAN. However, the use of WURLAN on an industrywide basis has not been achieved. Additional knowledge of processing is still needed at the manufacturing level as well.

Table 7b.--Consumption of wool in selected items of minor all-wool apparel and other consumer items, and predicted pounds of wool to be treated for complete launderability, 1962 market basis

Item - other (from table 7a)	Wool consumed as all-wool 1/	Completely launderable wool	
		Conversion rate 2/	Consumption indicated
	Pounds	Percent	Pounds
Women's, misses' and juniors':	15	NA	9.1
Unit-priced dresses.....	11	50	5.5
Shirts, blouses and waists..	2	90	1.8
Playsuits, sunsuits, and shorts, loungewear, anklets, socks, and gloves.....	2	90	1.8
:			
Men's and boys':.....	30	NA	7.8
Shirts work and uniform sport (woven and knit)....	4	90	3.6
Swim suits and trunks, robes and neckties.....	2	90	1.8
Outdoor jackets and athletic uniforms.....	13	10	1.3
Separate coats, tailored....	11	10	1.1
:			
Girls', children's and infants'.....	18	NA	7.8
Suits and skirts.....	3	90	2.7
Sweaters.....	1	90	0.9
Slacks, dresses, blouses and shirts, and other outerwear.....	2	90	1.8
Coats, jackets, etc. 3/.....	12	20	2.4
:			
Other consumer products.....	14	NA	12.6
Blankets and blanketing....	7	90	6.3
Handwork yarns.....	6	90	5.4
Apparel linings.....	1	90	0.9
:			

1/ Estimated - excludes wool used in blends.

2/ Estimated from survey results on need for complete launderability.

3/ Includes capes, reversibles, coat and legging, coat and snowpants sets, separate snowpants, and ski and snowsuits.

as a major program to promote WURLANized wool among retailers. Finally, consumer purchase and acceptance of WURLAN is required if it is to fulfill this anticipated market.

Launderability is but one of the qualities imparted to all-wool by the WURLAN process. Better wearing qualities; protection against shrinkage caused by rain, sudden changes in temperature, or dry cleaning; reduced pilling; improved drapeability; reduced wrinkling; and improved shape retention are all strong possibilities that may increase application of the WURLAN process. Market evaluation has been made only of the launderability feature. All of these other attributes may increase

the sales and acceptability of all-wool apparel. For example, increased durability and protection against shrinkage caused by rain may be highly desirable and a marketable feature in men's slacks and suits. A determination of the market value of all of these properties should be made if the WURLAN process is to be adapted to the broadest possible range of consumer all-wool products.

## INTRODUCTION OF COMPLETELY LAUNDERABLE ALL-WOOL APPAREL

Most retailers recommended women's "medium-price" or "better-price" fashion sportswear as the first all-wool apparel to have complete launderability. This new feature creates a profit opportunity not previously available to the textile trade. However, this favorable condition has the associated problems of added cost incurred in the development and production of the launderability feature as well as added costs of promotion, education, and management of a new inventory item. Some of these costs will decrease, or be eliminated over time, but if the first developmental costs are to be recovered with possibly a profit made in the beginning, there must be a price increase of the apparel items. Retailers say styling possibilities in the higher priced fashion sportswear best allow the necessary sudden increase in retail price. The added launderability justifies an increase in retail price, but to consumers only when their experience leads to their acceptance of the true added value. Therefore, styling should be the basis for the price increase. Since it will be the women who make most use of the launderable property, choosing apparel for them first will make the launderability feature available to the most consumers.

A complete changeover to a new completely launderable concept in all of the items of 100-percent wool, where the feature is favored, will take more than one marketing season to accomplish. Retailers believe that consumer acceptance of this new product will be excellent. Limited supplies of the new product and its acceptance by consumers could create another problem for retailers. For example, if two skirts were identical except for launderability, the one in largest supply, but without launderability, would soon be an obsolete product. A unique style line for the new completely launderable wool would reduce substitution between the two wools. This situation further justifies the selection of higher priced fashion sportswear to have complete launderability first. In this way competition and loss of profits with current stocks and price lines of shelf merchandise may at least be minimized.

## COMPARATIVE COSTS IN CARING FOR APPAREL - A CASE STUDY

Complete launderability offers consumers the opportunity to lower cleaning costs of their all-wool apparel. Table 8 shows relative costs of cleaning women's skirts by different methods. The results are based on a case study of cleaning costs at a commercial establishment providing three kinds of commercial services and secondary data on home laundering costs. Commercial dry cleaning is the most expensive method of cleaning, costing 47 cents more per skirt than home laundering (table 8). The data generally show that costs to consumers decrease as present home facilities are more efficiently utilized.

The initial purchase cost of a completely launderable skirt reduces the savings expected to be gained in laundering. For example, assuming an increased retail price of \$1 due to launderability, the extra expense involved in commercial dry-cleaning three times rather than home laundering three times just exceeds the additional retail purchase cost of launderability. Consumer savings of the full

Table 8.--Costs of cleaning skirts by several methods 1/

Cleaning method	Cost per item
	<u>Cents</u>
(1) Commercial dry cleaning.....	50
(2) Coin-operated dry cleaning:	
a. Commercial pressing.....	33
b. Home pressing.....	25
(3) Coin-operated machine laundering:	
a. Commercial pressing.....	32
b. Home pressing.....	7
(4) Home laundering.....	3

1/ Does not include charge for housewife's time.

Sources - A case study of one commercial establishment offering three kinds of services (1, 2, 3, above) 1964. Home laundering data based on: Deacon, Ruth E. Laundering at Home and With Commercial Services. Res. Bul. 869, Ohio Agr. Expt. Sta., Wooster, Ohio, Nov. 1960.

47 cents per laundering in this comparison actually begin with the fourth home laundering and can be multiplied by the remaining number of launderings for the life of the garment.

The \$1 purchase cost for launderability used in this study may not be totally accurate for skirts, or any other apparel item. According to retailers, an additional charge of this amount could be made for complete launderability on a former \$10 item during the introduction phase of the innovation. Actual manufacturing costs are not accurately known, but are expected to be much less than \$1 per skirt. Wide application of complete launderability in the long run could reduce consumer cost of the feature to a manufacturing cost plus profit position. Therefore, potential consumer savings also depend on the growth of this development and could be somewhat larger than shown in the previous paragraphs.

These data on cleaning costs are not representative of all situations. Actual cleaning costs to consumers do vary among establishments and would change the data accordingly. For example, some drycleaners charge substantially more than the 50 cents per skirt found in this case study. In addition, as noted earlier, the \$1 price of launderability probably will change over time. The case studied was chosen because three kinds of commercial services were available at one store location and comparative costs of cleaning methods were readily available. Once consumers arrived at the location, their choice of cleaning method was based on cost and service alone. Costs of these services were then tabulated with average cost data for laundering in the home. This analysis should not, therefore, be used as an absolute guide. It can serve only to place in relative position the cost of cleaning methods now available.

WURLANized Wool

The WURLAN treatment is the latest scientific development in the shrinkproofing of wool. This treatment was invented in the Wool and Mohair Laboratory of the U.S. Department of Agriculture, in Albany, Calif., and is technically known as an interfacial polymerization treatment for wool. In this chemical finishing process, an extremely thin film of polymer forms on the surface of the wool fibers. WURLAN differs from most previously used chemical treatments in that it does not weaken the wool. Indeed, WURLAN measurably strengthens the fibers and should, therefore, provide better wearing qualities and increased durability.

Total usefulness of any treatment or process to manufacture shrinkproof wool fabric also depends on other properties of the treated and laundered fabric. Adding shrinkproofness and laundering capability must not create undesirable fabric properties for the wearer. The following properties of WURLAN-treated fabrics have been determined by observations of many different weights, weaves, and colors of fabrics that have been treated under both laboratory and mill operating conditions: 1/

(1) Hand.--Experienced people in the textile industry consider the hand of WURLANized fabric as good to excellent.

(2) Shrinkage.--Treated all-wool yard goods have shown less than 5 percent of directional shrinkage after continuous machine washing in a home style washer in 140° F. water for 5 hours. In other tests, apparel made from treated fabric has not shrunk appreciably after 20 machine washings. Comfort, size, and appearance were not affected. One case study indicates that 95 percent of all WURLANized fabric produced met with a guaranteed maximum of 3-percent shrinkage. This standard of quality was economically attained in continuous commercial plant operation.

(3) Permanence.--It is indicated in tests for shrinkage that the treatment will last the life of the garment. In addition, it has been found that the WURLAN finish is not extractable by solvents. It is further concluded that WURLANized goods could be safely drycleaned with any drycleaning compound that is usable on wool.

(4) Colors and shades.--A slight change in dye-bath composition is necessary to compensate for darkening effected by the WURLAN treatment. The treatment has little effect on dye fastness or other dye properties.

(5) Permanent pleats.--Pleats and creases have been successfully applied to WURLANized fabrics with no problem.

(6) Strength.--WURLANized fabrics are from 5 to 10 percent stronger (in tearing and tensile strengths) than untreated fabrics. This is a distinct advantage over all other shrink-resistance treatments.

(7) Wearability.--Laboratory tests indicate a very significant improvement over untreated goods in abrasion resistance. It is expected that WURLANized goods will wear better and last longer. The WURLAN treatment, however, makes no change as to wrinkling or wrinkle resistance of the material.

(8) Drying.--There is no essential change in the drying rate after treatment, but the WURLANized fabric dries somewhat smoother than untreated fabric.

(9) Air Permeability.--Air permeability of treated fabrics is slightly decreased, but not enough to be of practical significance and does not affect comfort.

(10) Moisture absorption.--This characteristic is unchanged.

(11) Insulation characteristics.--There is no evidence to indicate a change in wearing warmth or comfort of the treated fabrics.

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